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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,379	11/03/2003	Chi Wah Cheng	033539-019	2752
21839	7590	04/04/2006		
BUCHANAN INGERSOLL PC (INCLUDING BURNS, DOANE, SWECKER & MATHIS) POST OFFICE BOX 1404 ALEXANDRIA, VA 22313-1404			EXAMINER CHAUDHRY, SAEED T	
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 04/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/698,379	<b>Applicant(s)</b> CHENG ET AL.	
	<b>Examiner</b> Saeed T. Chaudhry	<b>Art Unit</b> 1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/03, 3/05, 2/06</u> . | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### **Claim Rejections - 35 USC § 112**

**Claims 6-16 and 24-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

Claim 6 is indefinite and confusing since it recites “the components are supported on a surface of the support plate that is opposite to a surface facing the top surface of the cleaning fluid”, it is not clear how the component is supported on the platform from the opposite side of the component and the same platform is contacted with cleaning fluid unless this is a different support plate. Claims 13-14, 24 have the same problem.

Claim 30 is confusing since it is not clear that the support plate is facing the cleaning fluid or the electronic component is facing the cleaning fluid.

### **Claim Rejections - 35 USC § 102**

**The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:**

A person shall be entitled to a patent unless --

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- (c) he has abandoned the invention.
- (d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States.
- (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

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(f) he did not himself invent the subject matter sought to be patented.

(g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

**Claims 1, 3, 4, 19, 21 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Korean Patent (1992-0003879).**

Korean patent (1992-0003879) disclose a method and apparatus for cleaning electronic components. An ultrasonic waves generator(12) and a diaphragm (13) are formed in a container (10) filled with cleaning fluid (11). The surface of electronic component is supported on a platform (14) positioned over top surface of the cleaning fluid, wherein the electronic component comes into contact with the cleaning fluid (11). Ultrasonic waves propagated from the ultrasonic waves generator (12) and clean the electronic component. A supply line supply cleaning fluid to the container through inlets (21), which maintain the uniform amount of cleaning fluid in contact with the electronic component on the surface of the support platform and over flows out of the tank (see Fig. 3). In another embodiment, a moving mechanism (24) for moving the electronic components to the cleaning fluid or injection nozzles (38) for cleaning back and front surfaces of the electronic components (see abstract and Figures1, 3 and 6). The Korean patent discloses all the limitations as claimed herein. Therefore, Korean patent anticipate the claimed method and apparatus.

### **Claim Rejections - 35 USC § 103**

**The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:**

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

**Claims 2, 5, 16-18, 20, 23 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Korean patent (1992-0003879) in view of Bok.**

Korean patent (1992-0003879) was discussed supra. However, the reference fails to disclose that ultrasonic resonator is inside the tank or have an outer tank for collecting overflow fluid from the tank.

Bok (5,339,842) disclose a method and apparatus for cleaning objects by introducing ultrasonic vibration into a volume of liquid (11) with a transducer (10) immersed in the liquid of first reservoir (12) and contacting the upper level of the liquid with the object and overflowing the liquid to second reservoir (15). The overflowing liquid is circulated by withdrawing from the second reservoir and introducing the withdrawn liquid to the first reservoir after filtering the withdrawn liquid (see claims and Fig. 1). The reference discloses that ultrasonic transducers vibrate at frequency of from about 10 to 40 KHz for removing large particles from the surface of the object (see col. 1, lines 34-39). The reference discloses that the materials of construction of first reservoir 30 and second reservoir 35 are not critical to the present invention. Typical materials of construction include, for example, metal, glass, ceramics, plastics and combinations

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thereof (see col. 7, lines 15-19). The reference fails to disclose a support platform positioned over a top surface of the cleaning liquid.

It would have been obvious at the time applicant invented the claimed process and apparatus to include an outer tank adjacent to the inner tank as disclosed by Bok into the process and apparatus of Korean patent for the purpose of collecting overflow liquid and circulate the cleaning liquid to reduce the consumption of the cleaning liquid. Further, one of ordinary skill in the art would manipulate the ultrasonic radiation for better and efficient results. It is well known in the cleaning art to immerse the transducer in the cleaning liquid as disclosed by Bok. Therefore, one of ordinary skill in the art would manipulate the location of the transducer in the apparatus for efficient results.

**Claims 6-15 and 24-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Korean patent (1992-0003879) in view of Bok et al.**

Korean patent (1992-0003879) was discussed supra. However, the reference fails to disclose that the electronic components are supported from the opposite side of the cleaning liquid.

Bok et al (4,370,356) disclose an apparatus and method for supporting object (10) from the opposite side of the treating liquid and transporting the object (10) relative to the top surface of the cleaning liquid. The inverted substrate is advanced uniformly and tangentially with respect to the flow of liquid. The object is supported with a vacuum suction device from the opposite side of the liquid (see co. 2, lines 43-45 and Fig. 5).

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It would have been obvious at the time applicant invented the claimed method and apparatus to include a support means as disclosed by Bok et al into the apparatus and method of Korean patent to reduce the human interaction. The artisan would have been motivated to make the instant combination in an attempt to automate the machinery and reduce human errors. Further, one of ordinary skill in the art would manipulate the position of the support platform from middle of the tank to the rim of the tank for easy access to the components.

### **The Prior art**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hiraishi et al (6,506,260) disclose a method and apparatus for cleaning objects with ultrasonic vibration.

Ferrante (4,521,092) discloses method and apparatus for developing plates by passing the plates through a tank of liquid which is subjected to ultrasonic waves.

***Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saeed T. Chaudhry whose telephone number is (571) 272-1298. The examiner can normally be reached on Monday-Friday from 9:30 A.M. to 4:00 P.M.***

***If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Michael Barr, can be reached on (571)-272-1414. The fax phone number for non-final is (703)-872-9306.***

***When filing a FAX in Gp 1700, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communication with the PTO that are for entry into the file of the application. This will expedite processing of your papers.***


***Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (571) 272-1700.***

***Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information***

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*about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).*

***Saeed T. Chaudhry***  
***Patent Examiner***

A handwritten signature in black ink, appearing to read "Michael Barr", with a stylized flourish at the end.

**MICHAEL BARR**  
**SUPERVISORY PATENT EXAMINER**